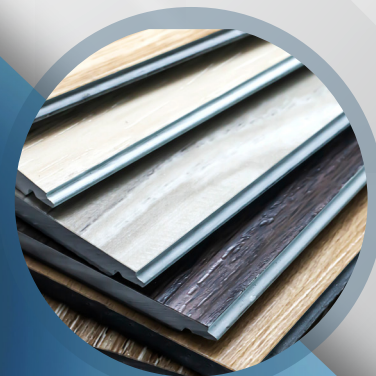
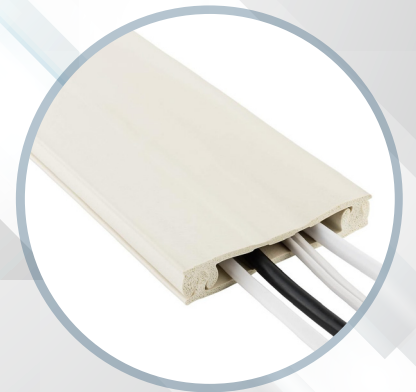
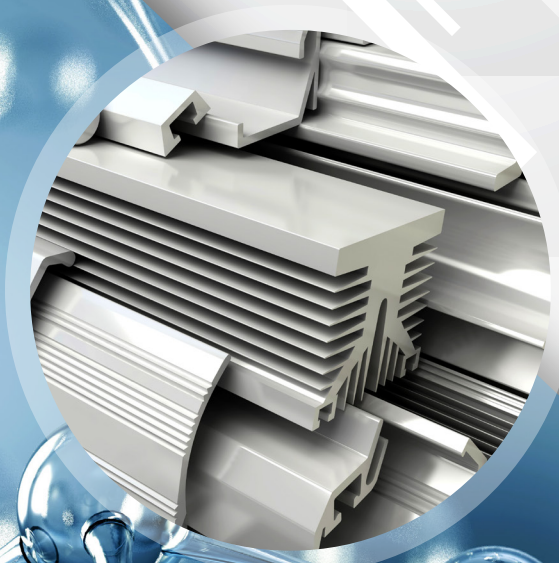




# CPE & IMPACT MODIFIERS





## Outline of CPE impact modifier

**ELN-CPE-135/800** is a high molecular synthetic material made from **HDPE** and **Chlorine** and it is a kind of thermoplastic elastomer with state of white powder. The **ELN-CPE-135/800** developed by our company has excellent elongation rate of break and outstanding toughness.



## Physical & chemical index

ITEMS	ELN-CPE-135	ELN-CPE-800
Appearance	White powder	White powder
Volatile Content (%)	≤ 0.40	≤ 0.40
Heat of Fusion (J/g)	≤ 2.0	≤ 2.0
Chlorine Content (%)	35±1	35±1
Sieve Residue (0.9 mm aperture)	≤ 2.0	≤ 2.0
Colored Particles (pieces/100g)	≤ 20	≤ 20
Tensile Strength (Mpa)	≥ 9.5	≥ 10
Shore A Hardness (A)	≤ 65	≤ 65
Tg (°C)	-10°C or so	-10°C or so
Specific Gravity	1.1 - 1.2	1.1 - 1.2
Bulk density (g/cm <sup>3</sup> )	0.40 - 0.60	0.40 - 0.60
CaCO <sub>3</sub> Content (%)	≤ 5.0	≤ 5.0



Excellent elongation at break and toughness

## PRODUCT BENEFITS



Excellent impact strength



Good weather-resistance



Good surface quality

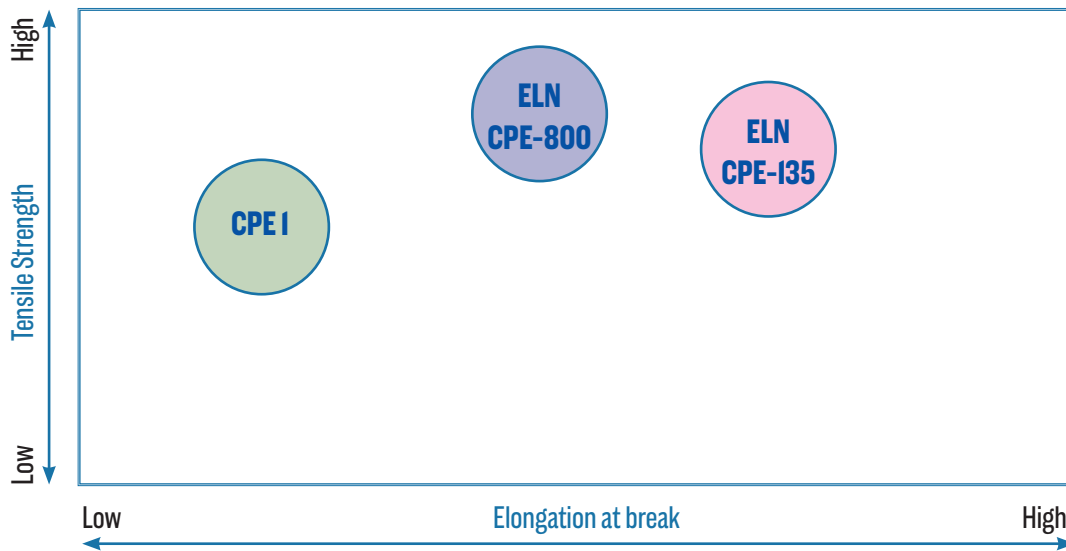


Endow PVC profile with good corner welding strength



## Performance Test

Elongation rate at break and tensile strength



## Technical Specifications

SPECIFICATION	UNIT	TEST STANDARD	ELN - CPE - 135	ELN - CPE - 800
Appearance	---	---	White powder	White powder
Bulk Density	g/cm <sup>3</sup>	GB/T 1636-2008	0.55 ± 0.10	0.55±0.10
Sieve Residue (30 mesh)	%	GB/T 2916	≤ 2.0	≤ 2.0
Volatile Content	%	ASTM D5668	≤ 0.40	≤ 0.50
Specific Gravity	---	ASTM D792	1.0-1.2	1.0-1.2
Tensile Strength	MPa	GB/T 528-2009	≥ 9.5	≥10
Elongation at Break	%	GB/T 528-2009	850-950	850-900
Hardness (Shore A)	A	GB/T 2411-2008	≤ 56.0	≤ 52.0
Heat of Fusion	J/g	GB/T19466	≤ 2.0	≤ 2.0
Flowability (cm <sup>2</sup> /second)	g/10 min	GB/T 1040-92	12-18	15-20

## Product Descriptions

**ELN-CPE-800** is a special **PVC** impact modifier developed by our **R&D** center. It can replace general **CPE** for cost-saving purpose, the **ELN-CPE-800** not only has the basic feature of **CPE**, but has better weatherability and better elongation rate at break. It is mainly used to improve the impact-strength of **PVC** opaque products and it is recommended for applications like **PVC** profile (except window profile), **PVC** ceiling, wall-panel, **PVC** tanks and **PVC** fence, foaming board, **WPC** etc. where good outdoor weathering and low-temperature impact resistance are critical properties.

## Product Advantages



## Mechanical Property Comparison Formula

**High-speed mixer**

Speed: 50Hz / Temperature: 50-125°C

INGREDIENTS	Formula with common CPE	Formula with ELN-CPE-800
	DOSAGE(Kgs)	DOSAGE(Kgs)
PVC (K-65)	100	100
CaCO <sub>3</sub>	160	160
Lead Stabilizer	7.8	7.8
Paraffin Wax	2.0	2.0
Stearic Acid	1.6	1.6
TiO <sub>2</sub>	4.0	4.0
CPE	10	---
ELN-CPE-800	---	9.5

## Result

	TEST CONDITION	TEST STANDARD	FORMULA WITH CPE	FORMULA WITH ELN-CPE-800
Impact Strength Kj/m <sup>2</sup>	0°C	GB/T 1043	5.8	6.1
Tensile Strength MPa	23°C 20 mm/min	GB/T 1040	41.8	42.2
Elongation Rate %	23°C 20mm/min	GB/T 1040	114.9	132.6
Hardness (shore A)	23°C	GB/T 2411	82.8	83.2

## Packing and storage

25kg/bag with PP bag and PE inner bag or 600-700 kg/sack PP bag with PE liner. It should be stored in cool and dry surroundings with shelf life of two years, it can be used if qualified by inspection after shelf life.

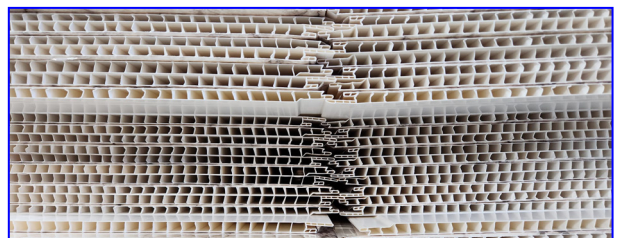
## Applications

ELN-CPE-800 is recommended for applications such as PVC profile, PVC ceiling, wall-panel, PVC tanks and PVC fence, foaming board, WPC etc. where good outdoor weathering and low-temperature impact resistance are critical properties.



## PVC Ceiling Formula

Raw materials (phr)	AMOUNT (Kg)
PVC K-65/67	100
Calcium Carbonate (CaCO <sub>3</sub> )	125
PVC Stabilizer	5
PE Wax	0.5
Calcium Stearate	0.3
ELN-CPE-800	1.5
Titanium Dioxide	3.5



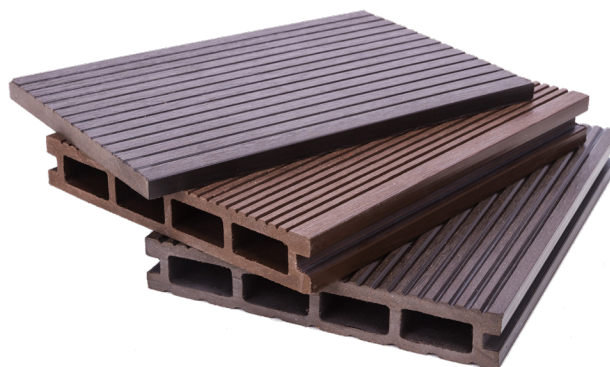
## PVC Pipe Formula

Raw materials (phr)	AMOUNT (Kg)
PVC K-65/67	100
Calcium Carbonate (CaCO <sub>3</sub> )	150
PVC Stabilizer	5
PE Wax	0.1
ELN-CPE-135	1
Stearic Acid	0.2
Calcium Stearate	0.3



## PVC Wood Composite Formula

Raw materials (phr)	AMOUNT (Kg)
PVC K-65/67	100
Calcium Carbonate (CaCO <sub>3</sub> )	100
Micronized Wood Powder	100
PVC Stabilizer	6
PE Wax	0.1
ELN-CPE-135	1
Stearic Acid	0.2



## Cable canal (PVC trunking) formula

Raw materials (phr)	AMOUNT (Kg)
PVC K-65/67	100
Calcium Carbonate (CaCO <sub>3</sub> )	125
PVC Stabilizer	4.25
PE Wax	0.5
ELN-CPE-800	1.5
Titanium Dioxide	3



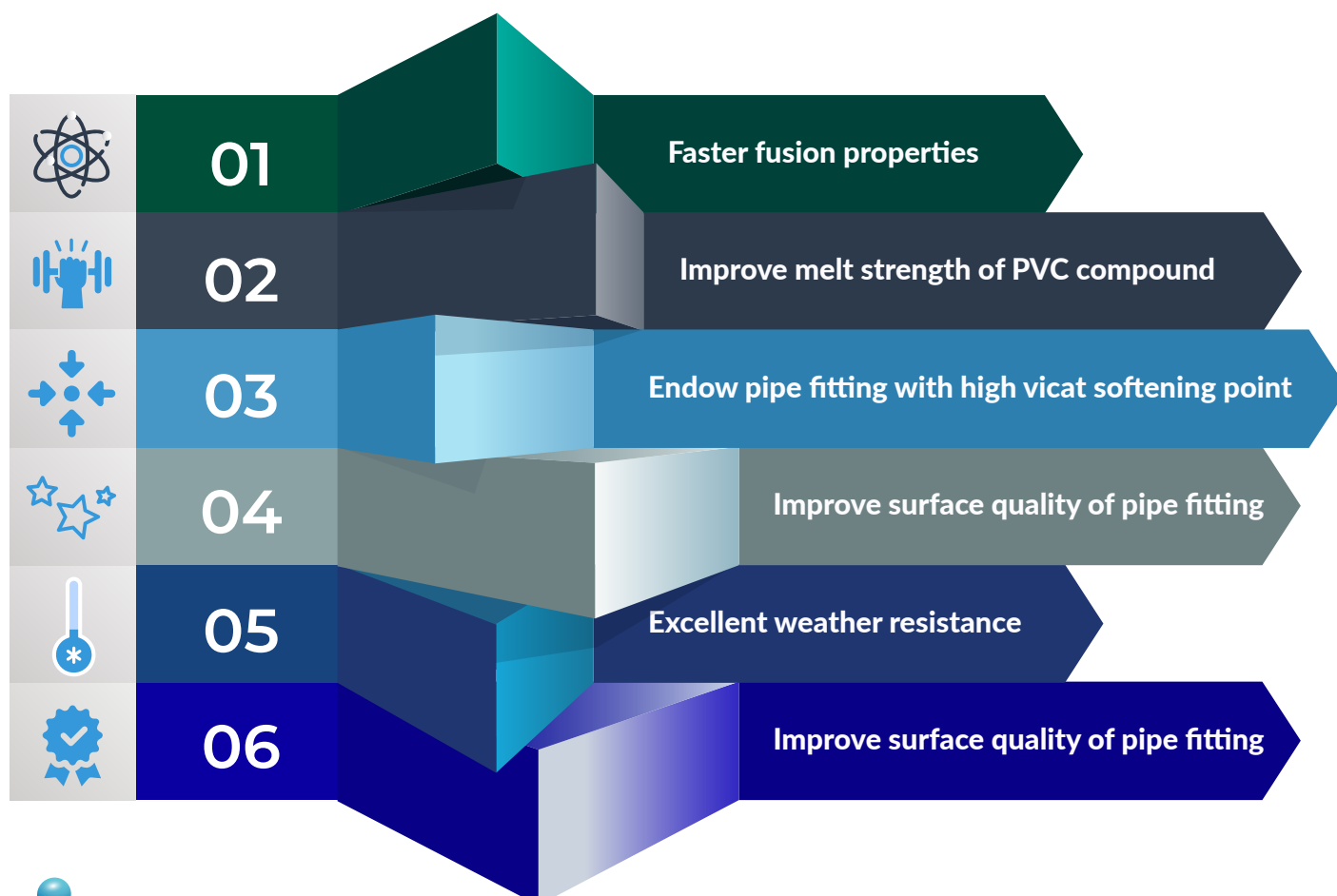
## Product Descriptions

**ELN-AIM-1** is a unique processing aid designed for **PVC** pipe fittings. **PVC** pipe fittings requires with high hardness, impact strength, and excellent surface glossiness. It can effectively solve butterfly spot issue due to its faster fusion and high melt strength and excellent melt flow.

## Technical standards of pure ELN-AIM-1

ITEM	UNIT	TEST STANDARDS	ELN-AIM-1
Appearance	--	--	White powder
Bulk Density	g/cm <sup>3</sup>	GB/T 1636	≥ 0.35
Sieve Residue (30 mesh)	%	GB/T 2916	≤ 2.0
Volatile Content	%	ASTM D5668	≤ 1.5

## Product Advantages





## Acrylic Based Impact Modifier

**ELN-AIM-700** is an acrylic based impact modifier. It is a co-polymer with a core-shell structure, the core can effectively transform the external impact energy into heat and the shell has a good compatibility with **PVC** matrix. In addition, acrylic impact modifier does not contain any chemical double bond; therefore, acrylic impact modifier has excellent impact-resistance, weather-resistance and color durability.

**ELN-AIM-700** will improve the impact strength of **PVC** products as well as provide heat and light stability.

## Product Description

**ELN-AIM-700** is a core-shell structure **Acrylic Impact Modifier**. It can give **PVC** excellent impact resistance performance as well as weatherability, coupled with the necessary properties of processing aids. It is an ideal impact modifier for rigid **PVC** profiles, sheets, boards, pipes, pipe fittings, etc.



Excellent Weatherability



Superior "Satin" Surface Finish.



Good Low Temperature Impact

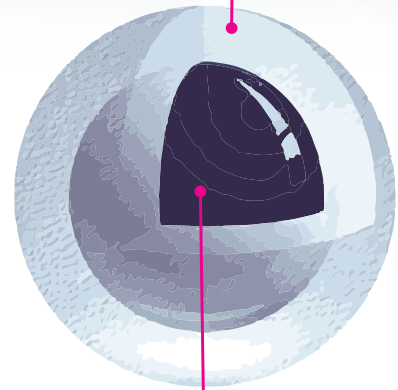


High Output



Improved Processability

Grafted Shell:  
MMA



Core:  
BA Rubber

Core-Shell Structure

# PRODUCT BENEFITS



## AIM-500 Acrylic Base Impact Modifier

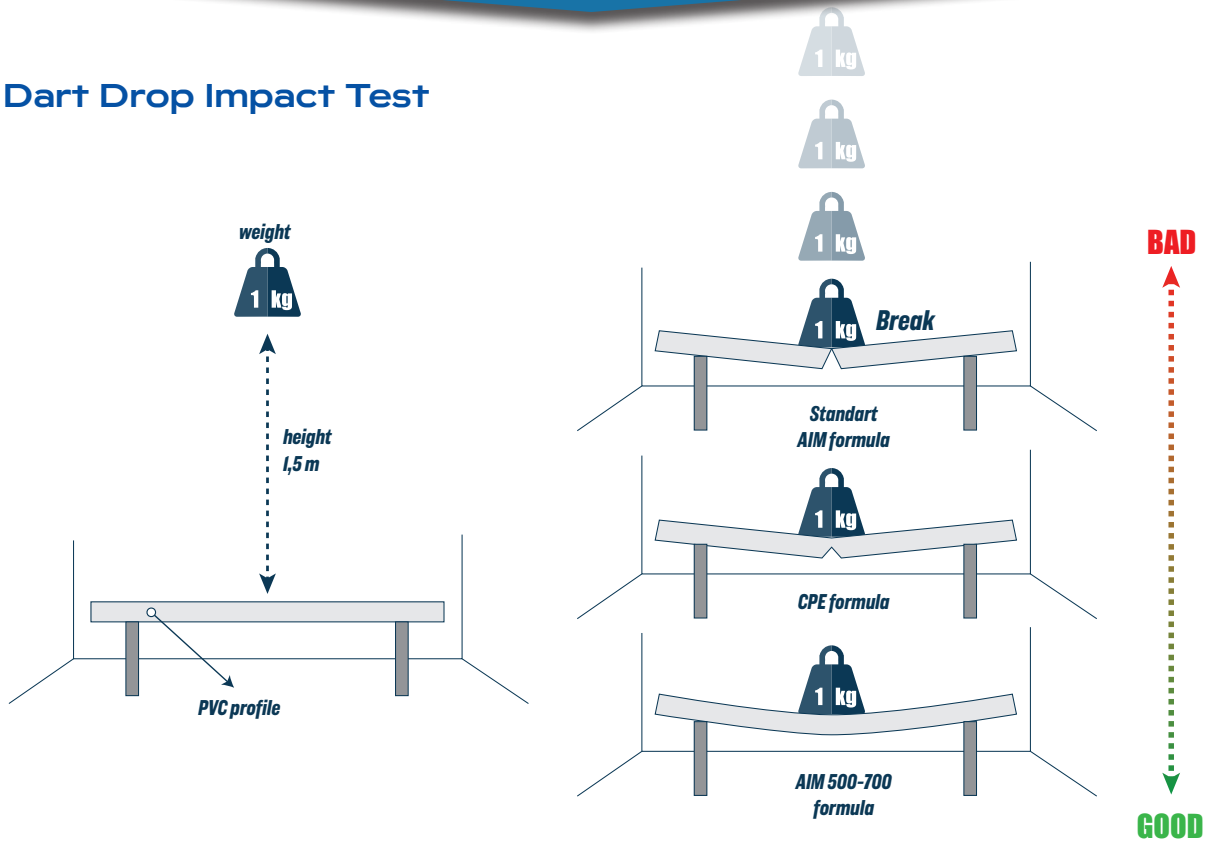
The main function of **AIM-500** is to enhance the impact strength of PVC-finished products at low temperatures and to promote the fusion of PVC blends. It can endow PVC-finished products with better toughness than the other impact modifiers.



# PRODUCT BENEFITS

-  Excellent impact strength at low temperature
-  Excellent toughness and hardness.
-  Excellent corner weld strength for PVC profile
-  Excellent nail-force for WPC
-  Better surface glossiness for PVC finished products
-  Better weather-resistance
-  Fast fusion property

## Dart Drop Impact Test



INGREDIENTS	DOSAGE(Kgs)
PVC (K-67)	100
Ca-Zn Stabilizer	4.0
CaCO <sub>3</sub> (PCC)	15.0
PE Wax	0.3
TiO <sub>2</sub> (Rutile)	5.0
Acrylic Processing Aid	0.8
AIM-500/700	Variable (4-8 phr)

## Packing and storage

25kg/bag PP bag with PE liner 600-700 kg/sack PP bag with PE liner.

It should be stored in cool and dry surroundings with shelf life of two years, it can be still used if qualified by inspection after shelf life.

### Technical standards of pure ELN-AIM-700

ITEM	UNIT	TECHNICAL STANDARDS	GLOBAL STANDARDS
Appearance White	---	White free-flow powder	---
Volatile Content	%	≥ 1.50	GB/T2914
Bulk Density	g/cm <sup>3</sup>	0.50-0.60	GB/T1636
Sieve Residue (30 mesh)	%	2.00	GB/T2916

### Basic Formulation A

ITEM	UNIT	TECHNICAL STANDARDS	GLOBAL STANDARDS
Izod Impact Strength (@ 23°C)	KJ/m <sup>2</sup>	≥ 15.0	GB/T1 843
Izod Impact Strength (@ - 10°C)	KJ/m <sup>2</sup>	≥ 9.0	GB/T1 843
Tensile Yield Strength Mpa	KJ/m <sup>2</sup>	≥ 40.0	GB/T1 843
Elongation Rate at Break	%	≥ 100.0 GB	GB/T1 040
Izod Impact Strength (after for 3000h)	KJ/m <sup>2</sup>	≥ 12.0	GB/T1 843
Fusion Time	Second	160-190	---

### Typical mechanical properties based on below basic formulation

PVC FORMULATIONS	
INGREDIENTS	PHR
PVC	100
ELN-AIM-700	7
Tin Stabilizer	2
CaCO <sub>3</sub> (PCC)	5
External Lubricant ELN-74	0.6
Internal Lubricant ELN-60	0.5

CONDITIONS FOR SAMPLES PREPARATION			
Opening double roll mixer		Compression molder	
Temp.	180°C	Pressure	150kg/cm <sup>2</sup>
Speed Ratio	1:1.15	Temp.	180°
Gap of Twin Roll	0.33mm	Preheated	3 min.
Time	5 min.	Dwell	3 min.

**PVC Window Profile Formula** 

Raw materials (phr)	AMOUNT (Kg)
PVC K-65/67	100
Calcium Carbonate (CaCO <sub>3</sub> )	50
PVC Stabilizer	5
PE Wax	0.1
Acrylic based impact modifier (ELN-AIM-700)	5
Titanium Dioxide (TiO <sub>2</sub> )	5



**PVC Fittings formula** 

Raw materials (phr)	AMOUNT (Kg)
PVC K-58	100
Calcium Carbonate (CaCO <sub>3</sub> )	20
PVC Stabilizer	5-6
PE Wax	0.1
Impact Modifier ELN-IM-I	0.8
Titanium Dioxide (TiO <sub>2</sub> )	0.2
Carbon Black	0.02



**SPC Flooring** 

Raw materials (phr)	AMOUNT (Kg)
PVC K-58	100
Calcium Carbonate (CaCO <sub>3</sub> )	40
PVC Stabilizer	5
PE Wax	0.7
Stearic Acid	0.4
Internal Lubricant ELN-60	0.8
Processing Aid	2
ELN-AIM-700	4



